A disadvantage of traditional network topologies is that individual systems cannot be reset by an explicit command, save so called "Wake-On LAN network protocols, which can command specialized network adapter cards to power up systems that have been powered off.
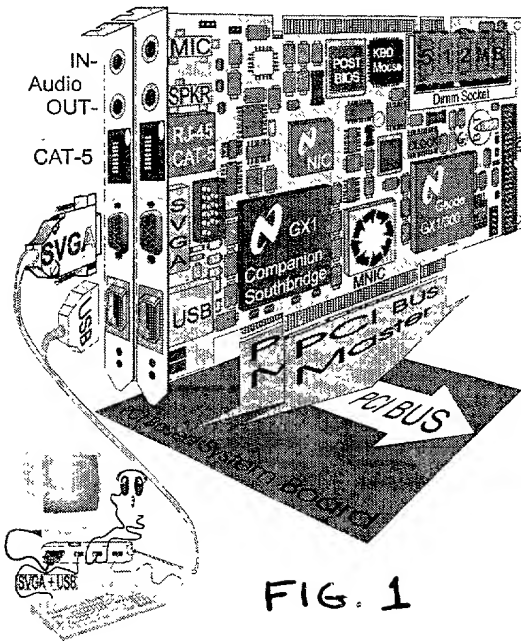

FIG. 1

One disadvantage of Modular Network architecture is that MSBC cards receive power and reset signals from a host machine. While host system power failure is unlikely and the likely hood of an unexpected failure can be reduced by techniques often employed in higher availability systems such as redundant power supplies, and uninterruptible power systems, reset conditions can occur spontaneously often as the result of user and software actions. Modular Network systems on cards are therefore vulnerable to these spontaneous reset conditions unless means are employed to protect them. The purpose of this specification is to describe such means.

Summary of the Invention

In accordance with the present invention, a modular system is provided as defined above, containing a concentrated LAN composed of a plurality computers connected by Modular Network Interface Chips to an ultra high-speed bus which is shared in common between all stations, host and MSBC cards alike. The bus serves as transmission medium between the computers at nodes of the LAN and as a conventional parallel-transfer bus medium for connecting individual computers in the system to shared resources, e.g. storage systems, which are accessible to those computers only through the bus.

Used as a network transmission medium, the MNIC modules enable any computer in the system to transfer data packets with any or all computers in the respective modular system. Such packets typically comply with standard network protocols such as TCP/IP, or NetBUI, but there is no requirement for use of standard protocol, save interoperability with other systems, which may be connected by standard network adapters to the high-speed bus externally.

MSBC cards are initialized per standard automatic configuration protocols, such as Plug and Play and include unique Media Access Control (MAC) addresses for network configuration. MSBC cards also contain standard Power On Self Test (POST) initialization routines in non-volatile memory for the initialization of the computer complex itself. MSBC cards include circuitry to detect power on and produce a general

Isolated Resets in Modular Network Computers

reset to all components on the card to stimulate initialization procedures, as any self-powered PC would have.
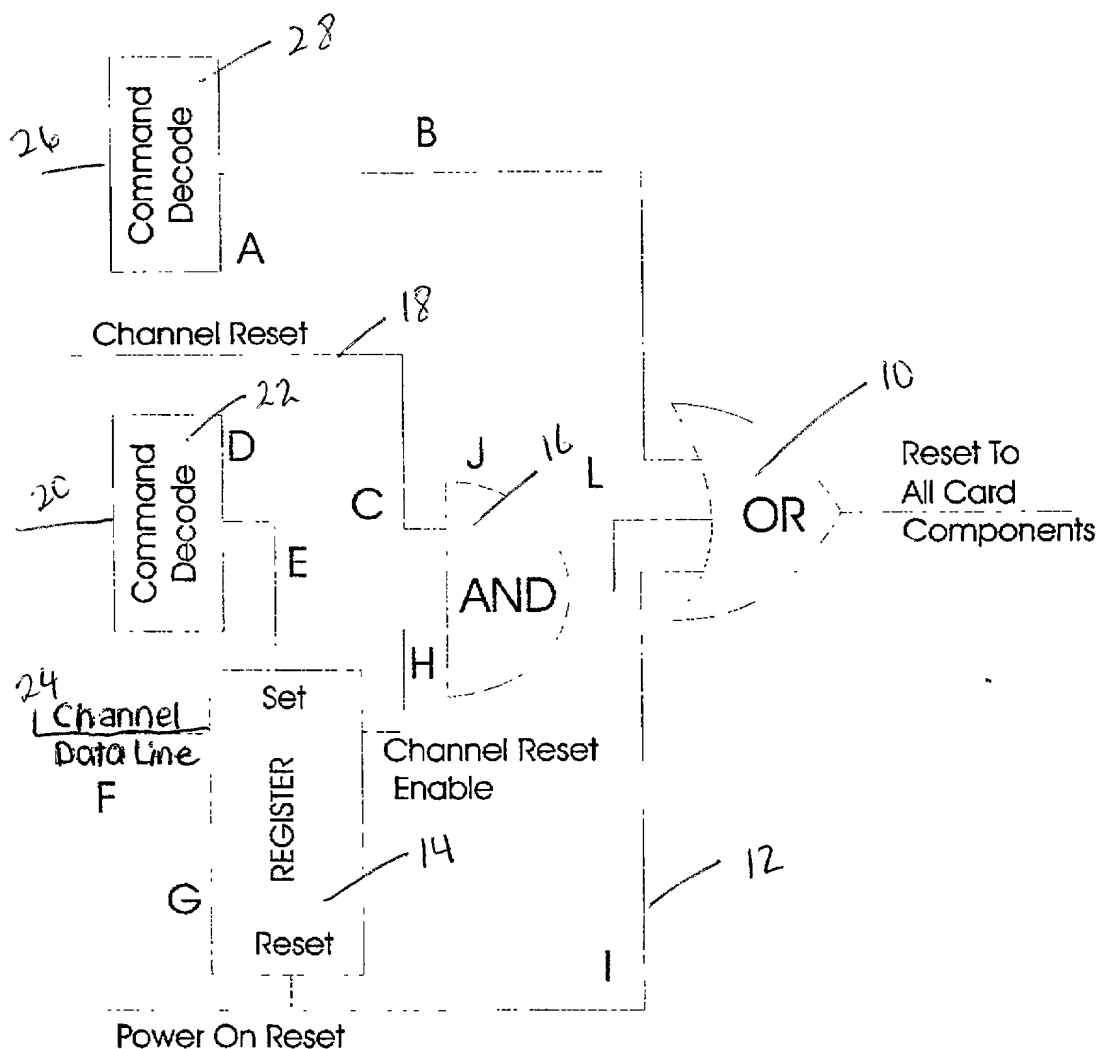
Fig. 2.

In the above drawing, circuitry permits blocking of Channel Reset commands following a Power on reset, or an explicit reset command to be received from the channel. The explicit command would be issued by the host system as a direct program control command.

The "Explicit Reset" command is decoded by Command Decoder "A" a signal "B". Signal "B" is one of three inputs to OR Gate "K", which can cause a general reset to the processor and registers of the MSBC card through signal "M".

4